

Date: May 27, 2014

**Environmental and Social Considerations in Detailed Planning Survey**  
**(Technical Cooperation for Development Planning)**

**1. Full Title of the Project**

The Study on Drainage and Sewerage Improvement Project in Phnom Penh Metropolitan Area

**2. Type of the study (e.g. Master Plan, Feasibility Study, Detailed Design, etc.)**

Master Plan and Pre-Feasibility Study

**3. Categorization and its reason**

**3-1 Categorization**

The Study is classified as a “Category B” because of the following reasons:

**3-2 Reasons**

(1) The Study aims to elaborate on a drainage and sewerage improvement Master Plan in the Phnom Penh Metropolitan Area, and the study per se does not have any environmental and social impacts.

(2) According to the results of the preliminary scoping of this project, which is described in section 8 of this document, this Study is classified as Category B because its potential adverse impacts on the environment and society are relatively little. Impacts are site-specific, and in most cases, normal mitigation measures can be designed more readily.

(3) According to JICA’s “Guidelines for Environmental and Social Considerations, JICA, April 2010”<sup>1</sup>, this project considers that the negative impacts on the natural environment and society are less adverse than those of Category A projects.

**4. Agency or institution responsible for the implementation of the Project**

The Department of Public Works and Transport (DPWT) of Phnom Penh Capital City (PPCC) shall act as the counterpart and responsible agency to the Master Plan Development Study.

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( [http://www.jica.go.jp/english/our\\_work/social\\_environmental/guideline/pdf/guideline100326.pdf](http://www.jica.go.jp/english/our_work/social_environmental/guideline/pdf/guideline100326.pdf) )

## **5. Outline of the Project (objectives, justification, location, proposed activities, and scope of the study)**

### **5-1 Objectives**

The objectives of the Study are as follows;

- (1) To formulate a master plan for sewage and urban drainage management
- (2) To carry out Pre-Feasibility Study on priority project/s selected from the master plan
- (3) To enhance planning capacity of institutions responsible for sewage and urban drainage management in PPCC

### **5-2 Justification**

The Master Plan is expected to contribute to the well-being of the Phnom Penh Metropolitan Area by preparing a sound drainage and sewerage improvement master plan, as well as prioritizing implementation activities and projects, giving strong attention to environmental and social conditions.

### **5-3 Location**

The target study area of the master plan is within the administrative area of PPCC with consideration of the watershed affecting PPCC.

### **5-4 Proposed activities**

Proposed activities include the preparation of Master Plans and implementation of the pre-feasibility study.

In order to achieve the objectives mentioned above in section 5-1, the JICA Master Plan development team will take necessary technical transfer on urban planning to counterpart officials.

### **5-5 Scope of the Study – Study activities**

The Study will cover the following activities:

- (1) Basic data collection
  - Natural and socio-economic conditions in the Kingdom of Cambodia and PPCC including rainfall, geological and topographical data
  - Present condition and issues of sewage and urban drainage management sector in the Kingdom of Cambodia and PPCC
  - Present condition and issues of the water supply system in PPCC
  - Present condition and issues of existing sanitary facilities in PPCC

- Present condition of water quality in PPCC and its surrounding area
- Laws, regulations, institutions and financial condition related to sewage and urban drainage management
- Relevant development plans in PPCC including land use plan
- Social survey on sanitary condition, inundation condition, sewage and urban drainage management, and inventory survey on existing sewage and drainage facilities in PPCC

(2) Formulation of the master plan for sewage and urban drainage management

- Confirmation of objectives, target area and target year for the master plan
- Evaluation of effect on water quality improvement in public water bodies by the installation of sewerage facilities
- Setup of concept for planning and designing
- Formulation of a sewage management plan(on-site and off-site facilities)
- Formulation of an urban drainage management plan
- Establishment of an economic and financial plan including study on potential private sector finance of and alternative financial sources for sewage and drainage management
- Establishment of a phased implementation schedule
- Selection of priority projects
- Establishment of an operation and maintenance plan, a human resource and institutional development plan
- Environmental and social consideration survey
- Consultation among stakeholders

(3) Pre-Feasibility Study

- Preliminary design
- Cost estimation
- Economic and financial analysis
- Environmental and social consideration survey
- Establishment of an implementation schedule
- Procurement plan

(4) Strengthening of planning capacity of counterpart

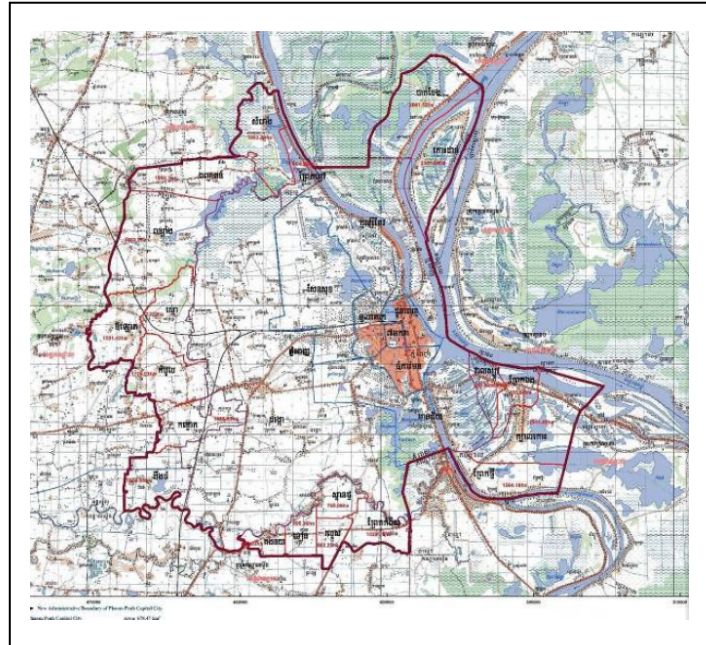
- On-the-job training (OJT)
- Periodical meeting for information sharing
- Training in Japan and other areas
- Organizing workshops

## 6. Description of the project site (maps, environmental and social condition, current issues, etc.)

### 6-1 Location Map of the Project Site



Map of Cambodia and location of the Phnom Penh Capital City (left)



Map of the Phnom Penh Capital City (right)

### 6-2. Environmental and social condition

#### 6-2-1 Environmental condition

##### (1) Geography

Phnom Penh is the capital and largest city of Cambodia, situated on the banks of the Tonlé Sap, Mekong and Bassac rivers, and was often threatened by flooding from rivers due to the insufficient safety of the surrounding flood dike. In addition, the urban drainage system, which consists of drainage pipes and pumps, is not functioning well due to the superannuated facilities constructed since the early 1900s, which caused habitual inundation during the rainy season.

##### (2) Climate

The climate of Phnom Penh Capital City is dominated by two monsoons:

- The northeast monsoon (dry season from October to April)
- The southwest monsoon (rainy season from May to October; about 80% of the rainfall occurs during this season)

The average annual temperature is about 32°C. The hottest months of the year are April and

May; the coldest months of the year are December and January. Seasonal temperature differences are relatively small. The annual average humidity is about 80% throughout the country.

## **6-2-2 Social condition**

### **(1) Demography**

Phnom Penh metropolitan area was the home of one (1) million people in 1998, and over one and a half (1.5) million people resided here in the year 2010. Phnom Penh, the capital city of Cambodia, has experienced population growth and urban area expansion, and currently has approximately a 680 km<sup>2</sup> administrative area.

Phnom Penh is mostly inhabited by Cambodians (or Khmers) who represent 90% of the population of the city. There are large minorities of Chinese, Vietnamese, and other small ethnic groups.

## **6-3 Current issues – water pollution caused by untreated wastewater discharge.**

Septic tanks have been commonly used for a long time in Phnom Penh Capital City, and overflow effluent from the septic tanks runs into the combined sewer system. Untreated domestic wastewater from households is continuously discharged directly into combined sewer systems - public sewer pipes and open channels. Septic tank liquid overflow together with domestic wastewater from the combined sewer systems causes contamination of retention ponds and wetlands which were acting as a natural oxidation and purification system in the city. The water-environment in the city has therefore been seriously deteriorated, and the water quality of Mekong, Sap and Bassac River also polluted, since there is no wastewater treatment plant in Phnom Penh Capital City.

To mitigate the above problems, the government of Cambodia applied for the new Master Plan Formulation Project – the Study on Drainage and Sewerage Improvement Project in Phnom Penh Metropolitan Area - and the Government of Japan has adopted the study.

## **7. Legal Framework of Environmental and Social Considerations**

**7-1 Laws, regulations and standards related to environmental and social issues including requirements and procedures of Environmental Impact Assessment (EIA), stakeholder participation, and information disclosure.**

**7-1-1 Laws, regulations and standards related to environmental and social considerations**

In Cambodia, there are three (3) levels of laws and regulations which stipulate environmental impact assessment (EIA) obligation and processes: Law, Sub-decree and Declaration.

- The Law on Environment Protection and Natural Resources Management 1996 is the main framework on environmental conservation/assessment.
- The Sub-decree on Environmental Impact Process 1999 - Cabinet/Council of Ministers' order - stipulates the definition of EIA. This Sub-decree prescribes the obligation, necessity and process of EIA reports, according to a project's type, size and capacity.
- The Prakas (Declaration) on General Guidelines for Conducting Initial and Full Environmental Impact Assessment (IEIA and FEIA) Reports 2009, (hereafter, EIA Declaration) - a ministerial ordinance - stipulates the approval procedure of IEIA/EIA, and detailed instructions and application form and documents to produce.
- The Joint Prakas (Declaration) on the Establishment of Service fee for Reviewing report of EIA and Monitoring the Project implementation (2000 and 2012) are the Joint Declarations (ministerial ordinance) between the Ministry of Environment (MOE) and the Ministry of Economy and Finance (MEF). The joint declaration on the Establishment of Service fee for Reviewing report of EIA and Monitoring the Project implementation was issued in 2000 and revised in 2012. The 2012 Joint Declaration stipulates service fees for reviewing EIA reports and for monitoring the project implementation by type and activities of the development project.

### **7-1-2 Requirements and procedures of Environmental Impact Assessment (EIA)**

#### **(1) Requirements of EIA**

##### *Projects Subject to the IEIA/EIA*

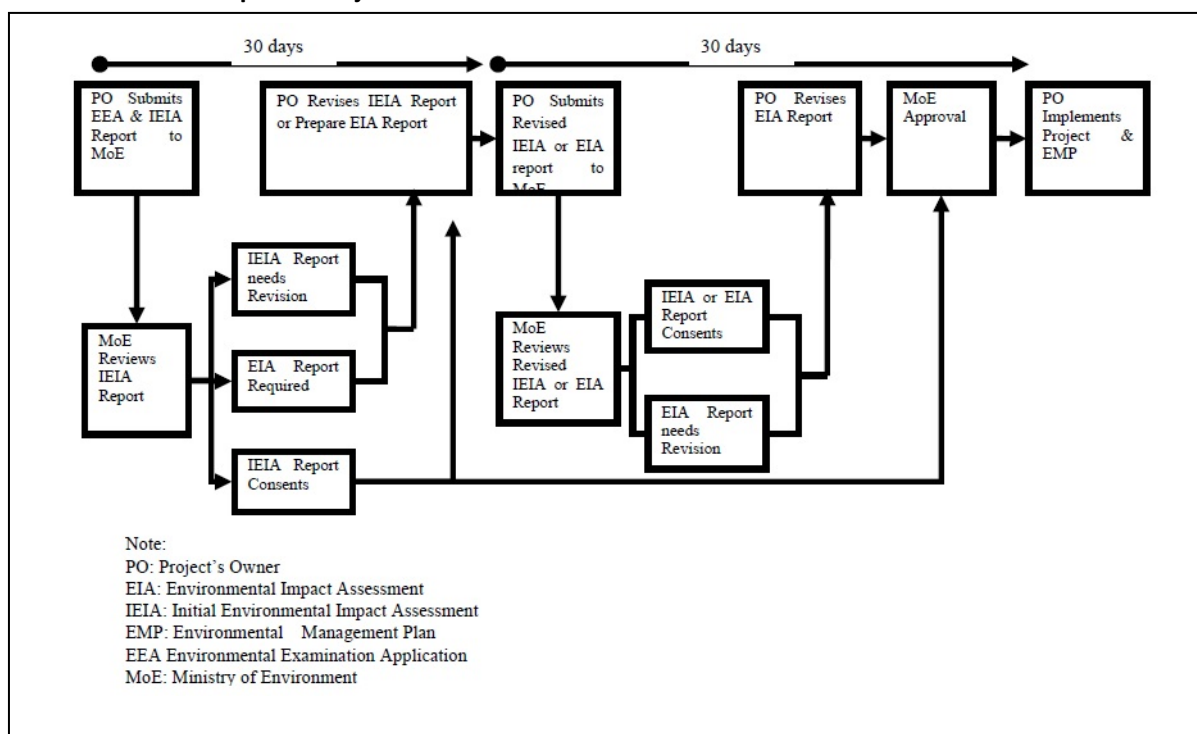
In Cambodia, project proponents to submit the Initial Environmental Examination (IEE) or Initial Environmental Impact Assessment (IEIA), and/or Environmental Impact Assessment (EIA, or often called full EIA) report are employed to relevant institutions to review and approve a project implementation.

The EIA sub-decree 1999 defines the type, category and size of the project to be subject to EIA (Article 6, 7 and annex). According to the EIA sub-decree, "Waste water treatment plant (All sizes)" and "Urban infrastructure development (All sizes)" are subject to EIA, and must prepare an EIA report/s and submit to the MOE or Department of Environment (DOE). The national level project which is more than 2,000,000 USD of capital investment will be reviewed by MOE, and the project less than 2,000,000 USD - municipal/provincial level projects – will be reviewed by DOE.

(2) Procedures of EIA

EIA Process of reviewing an EIA report is prescribed in “EIA Declaration 2009”, and the process is shown in the following diagram.

**EIA Process for Proposed Project**



Source: Declaration on General Guideline for Conducting Initial and Full Environmental Impact Assessment (IEIA/EIA) Reports, 2009, Ministry of Environment (MOE).

**7-1-3 Stakeholder participation and information disclosure**

The EIA Declaration, 2009 stipulates the detailed instructions and process of EIA. Annex 1 of the “EIA Declaration” describes that the objective of the general guideline development is to introduce relevant stakeholders, including reviewers, project owners, consultant companies; decision makers/project approval ministries – institutions and other relevant stakeholders to implement the guidelines. The EIA Declaration encourages public participation in the EIA process, and indicates that all relevant stakeholders follow the guidelines.

JICA will assist the project proponent/ counterpart to disclose information about the environmental and social considerations, according to the JICA guideline 2010.

**7-2 Relative agencies and institution**

The main agencies in charge of environmental issues are the Ministry of Environment (MOE) and Department of Environment (DOE) at PPCC. The MOE/DOE works for creating the national environmental policies, regulations and standards, such as Sub-decrees and Declarations.

These two (2) agencies monitor various pollution sources including water, air, waste, noise and vibration, soil etc., and enhance motivation among people to protect the environment.

Other central government entities include the Ministry of Water Resources and Meteorology, Ministry of Rural Development, Ministry of Public Works and Transport, Ministry of Health, Council for the Development of Cambodia (CDC), Cambodian Agricultural Research and Development Institute (CARD).

Other local government entities which relate to environmental management and conservation are divisions at the Phnom Penh Capital Hall (PPCH), including the Waste Management Division and Urbanization Division.

Fig. 7-1: The MOE organizational chart

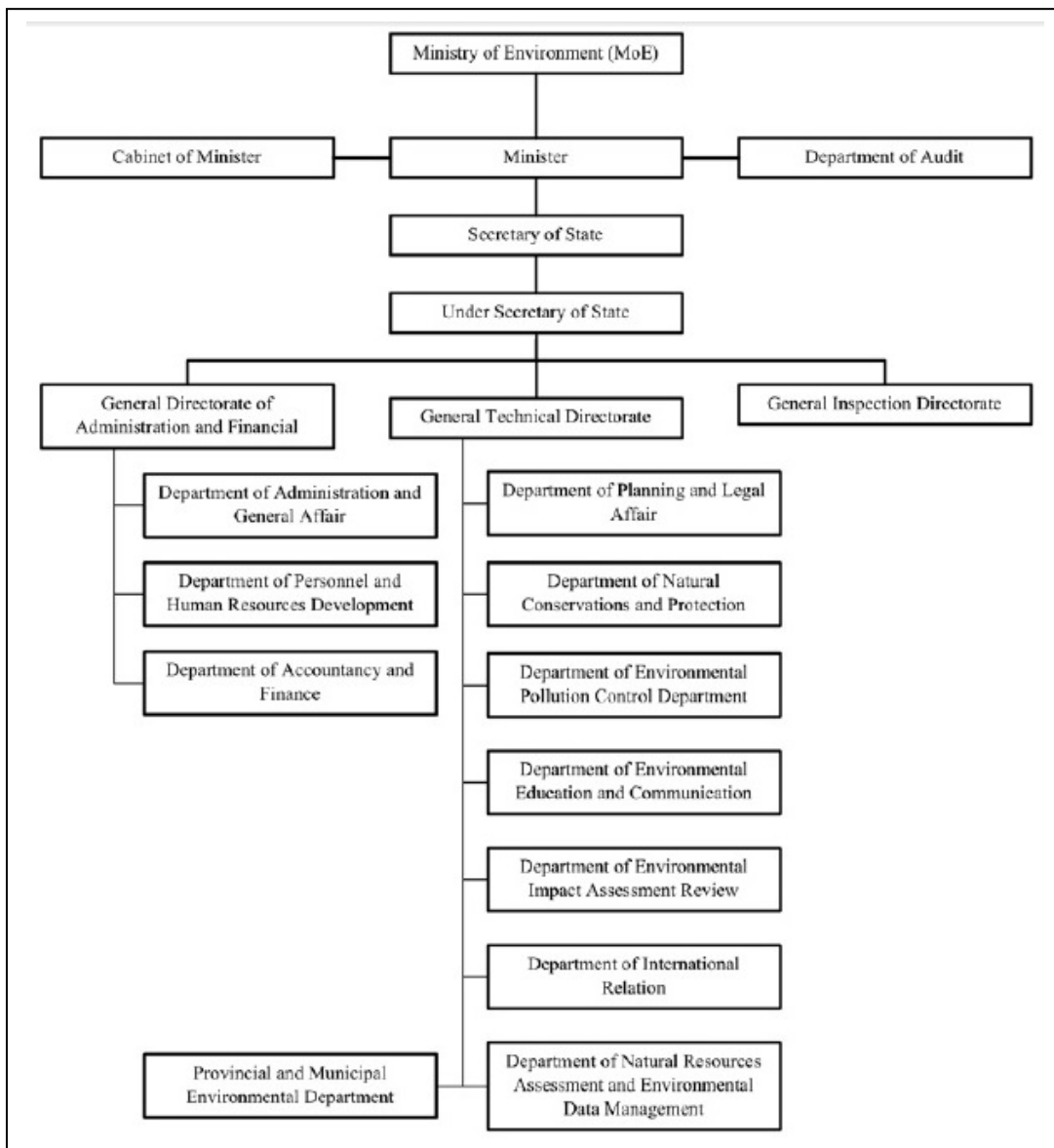
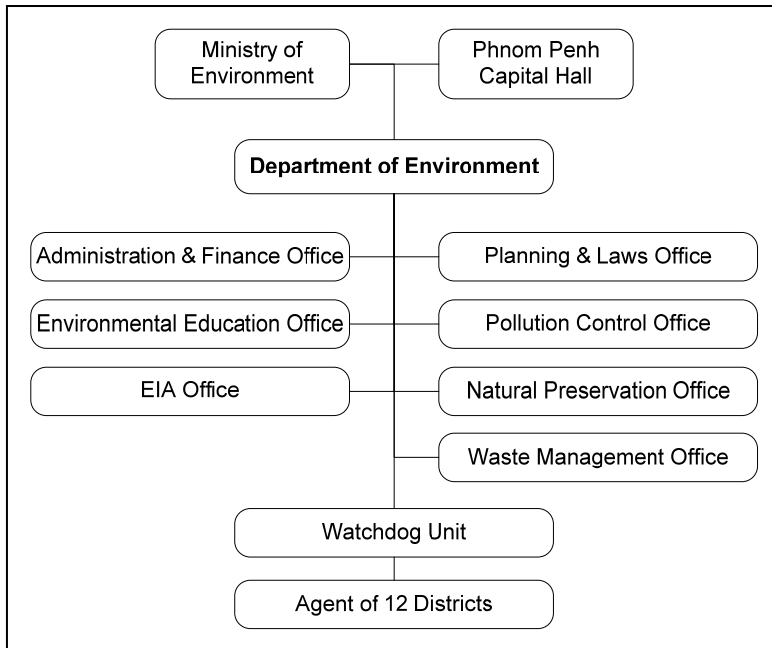




Fig. 7-2: The DOE organizational chart



## 8. Provisional Scoping (types and magnitudes of possible adverse impacts and mitigation measures)

### 8-1 Types and magnitudes of possible impacts

Provisional scoping of the environmental and social Impact assessment was carried out based on possible activities after a formulation of the Master Plan, and pre-feasibility study (pre-FS) for the priority project/s. The aim of this Master Plan is (i) improvement of sewerage systems, including a construction of new sewage treatment plant, and (ii) improvement of the storm water drainage systems in Phnom Penh Metropolitan Area. Possible priority projects to examine the provisional scoping, from the view point of environmental and social adverse impacts, is categorized into two (2) activities; (i) construction of new wastewater treatment plant , and (ii) improvement of the storm water drainage and sewerage system.

Categories/parameters to evaluate were determined from the JICA Guidelines for Environmental and Social Considerations 2010, and possible negative impacts are examined at the three (3) project stages: (i) planning stage, (ii) construction stage, and (iii) operation stages.

#### (1) The Results of Provisional Scoping, Construction of new Wastewater Treatment Plant

Since the Master Plan study has not been started, it is impossible to identify the project

outlines, such as the construction site and the size and treatment system of the sewage treatment plant. As a result of this lack of information, the accuracy of the provisional scoping is not guaranteed, so it is necessary to re-evaluate possible negative impacts caused by the new wastewater treatment plant construction.

The results of provisional scoping are shown in Table 8.1.

Table 8.1: The Results of Provisional Scoping, Construction of new Wastewater Treatment Plant

category	No.	Evaluation Parameters	Rating		
			Planning Stage	Construction Stage	Operation Stage
Social Environment	1	Involuntary Resettlement	D	C+/-	D
	2	Local economy such as employment and livelihood, etc.	D	C+/-	C+/-
	3	Land use and utilization of local resources	D	A-	C+/-
	4	Social institutions such as social infrastructure and local decision-making institutions	D	C+/-	C+/-
	5	Existing social infrastructures and services	D	D	D
	6	The poor, indigenous and ethnic people	D	C+/-	C+/-
	7	Misdistribution of benefit and damage	D	C+/-	C+/-
	8	Cultural heritage	D	D	D
	9	Local conflict of interests	D	C+/-	C+/-
	10	Water Usage or Water Rights and Rights of Common	D	D	D
	11	Sanitation	D	D	D
	12	Hazards (Risk) , Infectious diseases such as HIV/AIDS	D	C+/-	D
Natural Environment	13	Topography and Geographical features	D	A-	C+/-
	14	Groundwater	D	C+/-	D
	15	Soil Erosion	D	C+/-	C+/-
	16	Hydrological Situation	D	C+/-	D
	17	Coastal Zone, (Mangroves, Coral reefs, Tidal flats, etc.)	N/A	N/A	N/A
	18	Flora, Fauna and Biodiversity	D	C+/-	D
	19	Meteorology	N/A	N/A	N/A
	20	Landscape	D	A-	A-
	21	Global Warming	D	C+/-	C+/-
Pollution	22	Air Pollution	D	B-	D
	23	Water Pollution	D	B-	D

24	Soil Contamination	D	C+/-	D
25	Waste	D	B-	B-
26	Noise and Vibration	D	B-	C+/-
27	Ground Subsidence	D	C+/-	N/A
28	Offensive Odor	D	D	B-
29	Bottom sediment	D	D	D
30	Accidents	D	B-	C+/-

Rating:

A-: Significant negative impact is expected.

B-: Negative impact is expected to some extent.

C+/-: Extent of impact is unknown. (Examination is needed. Impacts may become clear as study progresses.)

D: No impact is expected.

N/A: Not Applicable

(2) The Results of Provisional Scoping, improvement of the storm water drainage and sewerage system

Impact evaluation caused from improvement of the drainage and sewerage system is shown in Table 8.2.

Table 8.2: The Results of Provisional Scoping, improvement of the storm water drainage and sewerage system.

category	No.	Evaluation Parameters	Rating		
			Planning Stage	Construction Stage	Operation Stage
Social Environment	1	Involuntary Resettlement	D	C+/-	D
	2	Local economy such as employment and livelihood, etc.	D	C+/-	D
	3	Land use and utilization of local resources	D	C+/-	D
	4	Social institutions such as social infrastructure and local decision-making institutions	D	C+/-	D
	5	Existing social infrastructures and services	D	D	D
	6	The poor, indigenous and ethnic people	D	C+/-	D
	7	Misdistribution of benefit and damage	D	C+/-	C+/-
	8	Cultural heritage	D	C+/-	D
	9	Local conflict of interests	D	C+/-	D
	10	Water Usage or Water Rights and Rights of Common	D	D	D
	11	Sanitation	D	D	D
	12	Hazards (Risk), Infectious diseases such as HIV/AIDS	D	C+/-	D

Natural Environment	13	Topography and Geographical features	D	C+/-	D
	14	Groundwater	D	C+/-	D
	15	Soil Erosion	D	C+/-	D
	16	Hydrological Situation	D	C+/-	D
	17	Coastal Zone, (Mangroves, Coral reefs, Tidal flats, etc.)	N/A	N/A	N/A
	18	Flora, Fauna and Biodiversity	D	C+/-	D
	19	Meteorology	N/A	N/A	N/A
	20	Landscape	D	B-	D
	21	Global Warming	D	B-	D
Pollution	22	Air Pollution	D	B-	D
	23	Water Pollution	D	C+/-	D
	24	Soil Contamination	D	C+/-	D
	25	Waste	D	B-	B-
	26	Noise and Vibration	D	B-	C+/-
	27	Ground Subsidence	D	C+/-	N/A
	28	Offensive Odor	D	C+/-	D
	29	Bottom sediment	N/A	N/A	N/A
	30	Accidents	D	B-	C+/-

**Rating:**

A-: Significant negative impact is expected.

B-: Negative impact is expected to some extent.

C+/-: Extent of impact is unknown. (Examination is needed. Impacts may become clear as study progresses.)

D: No impact is expected.

N/A: Not Applicable

**8-2 Mitigation measures**

Detailed mitigation plans and measures will be elaborated on through the implementation of the Master Plan study project.

**9. Alternatives to the project activities including ‘without project’ option**

(1) Without Project Option

Consideration of “without project option” means a “Do nothing option”, which is no master plan formulation and will not take any action on the present situation. Issues and problems of water pollution, described in section 6.3, are the results from absence of wastewater

treatment plants, and water pollution will be worsened in the future without any countermeasures.

The Phnom Penh Capital City's drainage system is superannuated, and the Capital City is under threat from recent extremely heavy rain and inundation. Without any countermeasures to the present situation, the Capital City will be continuously vulnerable to the climate change – heavy rain, and continuously experience the economic loss caused from inundation.

As a conclusion, the Master Plan to improve the present situation should be considered in both wastewater and drainage management.

(2) Consideration of alternative/optional activities in Drainage and Sewerage treatment systems.

The Master Plan resulting from the Study will discuss the details of alternative or optional activities.

#### **10. Result of the consultation with recipient government on environmental and social consideration including roles and responsibilities**

DPWT of PPCC (counterpart agency) and the Governor of PPCC understood and agreed with JICA on 29, May 2014 to abide by JICA Guidelines for Environmental and Social Considerations' in order to ensure that appropriate considerations will be made for environmental and social impacts of the Study. This statement of understanding is described in the section of "Study Description" of Record of Discussion (R/D).

PPCC also agreed that the Study should comply with both Cambodian Environment related laws and regulations, and JICA Guidelines for Environmental and Social Considerations. At the stage of conducting a "pre-feasibility study" for the prioritized projects, the project owner (DPWT) should prepare an Initial Environmental Examination (IEE) report. For the next feasibility study stage, the project owner has to conduct an Environmental Impact Assessment (EIA) process. This mutual understanding was agreed upon by both parties on April 11, 2014, and the statement as described in the section of "Main Points Discussed" of the Draft R/D. Draft R/D will be signed before the commencement of the master plan study activity between the chief representative of JICA Cambodia Office and the Governor of Phnom Penh Capital City Hall of the Kingdom of Cambodia.

## **11. Terms of Reference for Environmental and Social Considerations**

### **(1) Purpose and Objectives of EIA Activities**

The counterpart of the Master Plan study and future project proponent/project owner of the drainage and sewerage improvement project is DPWT. The project owner –DPWT of the PPCC agreed to prepare an Initial Environmental Examination (IEE) report, during a pre-feasibility study for the prioritized projects, in order to comply with both Cambodian Environment related laws and regulations, and JICA Guidelines for Environmental and Social Considerations 2010.

JICA will support DPWT in the preparation of the IEE. Contents of the IEE report were shown in the Annex 1 of the “General guideline for conducting EIA Declaration, 2009.

### **(2) IEE Study Area and Scope of Work**

According to the Annex 1 of the EIA Declaration 2009, information described in section 2-2 should be investigated and reported in the IEE report.

#### **(2-1) Consideration**

Environmental Impact Assessment, evaluation and reporting should comply with the following regulations and guidelines:

- The Sub-decree on Environmental Impact Process 1999 in Cambodia
- The Prakas (Declaration) on General Guidelines for Conducting Initial and Full Environmental Impact Assessment (IEIA and FEIA) Reports 2009 in Cambodia
- JICA Guidelines for Environmental and Social Considerations, April 2010

#### **(2-2) Specific IEE Study Area and Tasks**

1. Introduction; project overview, objectives of EIA report, methodologies and scope of study.
2. Legal frameworks; laws, sub-decree and policies related to project.
3. Project Description; background, project site, project type/scope, time and schedule, action plan of work, etc.
4. Description of Environmental Resources; natural environmental resources, physical resources, biological resources, socio-economic resources.
5. Public Participation – introduction, conducting the public consultation, conclusion of public consultation.
6. Environmental Impacts and Mitigation Measures – negative impacts during the project pre-operation, operation and abundant with mitigation measures, positive impacts.
7. Environmental Management Plan (EMP) – summary of negative impacts and mitigation measures, trainings to be provided, monitoring schedule during construction and operation

and closure phases.

8. Economic Analysis and Environmental Value.

9. Conclusion and Recommendation.

(3) Reporting

Initial Environmental Examination (IEE) report on proposed project activities

**12. Other relevant information**

None. (Available on request)